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10/023,069	12/17/2001	Yong Yan	US 010666	3745

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EXAMINER

LEE, RICHARD J

ART UNIT PAPER NUMBER

2613

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/023,069

Applicant(s)

YAN ET AL.

Examiner

Richard Lee

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2613

1. Claims 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 claims a “program product” but comprises only “means plus function” apparatuses, thereby claiming two statutory classes, and thus rendering the claim indefinite since the metes and bounds of the claim have not be clearly set forth (see suggestion at below paragraph (3)).

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 13-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Independent claim 13 sets forth a program product stored on a computer readable medium for encoding a video image in an object-based encoding system as described in the preamble, and thereafter recites only “means plus function” apparatus. Independent claim 13 is considered non-statutory subject matter under 35 U.S.C. 101 since the preamble defines a computer program per se, and does not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program’s functionality to be realized (see MPEP 2106). Since dependent claims 14-20 are directed to further limitations based on the program product of claim 13, claims 13-20 as a whole for reasons above do not fall within the statutory classes set forth in 35 U.S.C. 101.

Suggestion: At claim 13, lines 1-2, replace “A program product stored on a computer readable medium for encoding a video image in an object-based encoding system, said object

Art Unit: 2613

based encoding system comprising” to “A computer program stored on a computer readable medium for encoding a video image in an object-based encoding system, said object-based encoding system comprising” in order to overcome the 35 U.S.C. 101 and 35 USC 112, second paragraph rejections on the claims.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 6-8, 12-14, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Eifrig et al of record (RE38,564).

Eifrig et al discloses a motion estimation and compensation of video object planes for interlaced digital video as shown in Figures 1, 2, and 10-12, and the same MPEG-4 object based encoding system and method for encoding a video image, and program product stored on a computer readable medium for encoding a video image in an object based encoding system (see column 1) as claimed in claims 1, 2, 6-8, 12-14, 18, and 19, comprising the same foreground encoding system (i.e., 137 of Figure 1, see column 5, lines 34-62) for generating foreground shape data and coding a foreground shape into a foreground video object plane; a padding system (i.e., segmentation masking of the background VOP for further padding, see Figures 10-12, column 5, lines 34-62, column 6, lines 14-22, column 16, line 23 to column 18, line 16) that pads a masked area in a background video object plane, wherein the masked area is determined from data associated with the foreground shape (i.e., masked area 109, 119 of Figure 1 is

Art Unit: 2613

determined from data associated with the foreground shape data 107, 108, 117, 118 of Figure 1) and is padded with an arbitrary value (i.e., the VOPs 117, 118, 119 representing the masked areas are padded with arbitrary values pertaining to code word `f_code` or averaging of boundary pixel values, see column 5, lines 35-52, column 10, lines 4-15, column 16, line 23 to column 18, line 16); a background encoding system (i.e., 139 of Figure 1, and see column 5, lines 34-62) for coding the background video object plane; wherein the foreground encoding system utilizes a shape-based encoding scheme (i.e., as provided by the 137 of Figure 1, see column 5, lines 34-62); and wherein the background object plane is texture coded (i.e., as provided by 139 of Figure 1, and see column 5, lines 34-62, column 6, lines 14-22).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 9, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eifrig et al as applied to claims 1, 2, 6-8, 12-14, 18, and 19 in the above paragraph (5), and further in view of Itokawa of record (6,404,901).

Eifrig et al discloses substantially the same MPEG-4 object based encoding system and method for encoding a video image, and program product stored on a recordable medium for encoding a video image in an object based encoding system as above, but does not particularly disclose the followings:

(a) wherein the background encoding system utilizes a frame based encoding scheme as claimed in claims 3, 9, and 15; and

(b) wherein the background object plane is shape coded as claimed in claim 20.

Regarding (a) and (b), Itokawa discloses an image information processing apparatus as shown in Figure 8, and teaches the conventional frame based encoder (i.e., 108 of Figure 8, see column 5, lines 31-56) for encoding frames of background data as well as shape coding for background data (see column 5, lines 31-56). Therefore, it would have been obvious to one of ordinary skill in the art, having the Eifrig et al and Itokawa references in front of him/her and the general knowledge of background and foreground encodings, would have had no difficulty in providing the frame based and shaped based coding of background data as taught by Itokawa a part of the background video object plane coding within Eifrig et al for the same well known MPEG-4 compliant compression purposes as claimed.

8. Claims 4, 5, 10, 11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eifrig et al as applied to claims 1, 2, 6-8, 12-14, 18, and 19 in the above paragraph (5), and further in view of Ostermann of record (Coding of Arbitrarily Shaped Objects with Binary and Greyscale Alpha-Maps: What Can MPEG-4 Do For You?).

Eifrig et al discloses substantially the same MPEG-4 object based encoding system and method for encoding a video image, and program product stored on a recordable medium for encoding a video image in an object based encoding system as above, but does not particularly disclose wherein the masked area is padded with zeros when the video image comprises a P or B frame and wherein the masked area is padded with an average pixel value of the masked area when the video image comprises an I frame as claimed in claims 4, 5, 10, 11, 16, and 17. However, Ostermann discloses a shaped based object coder system and teaches the particular padding of pixels to 0 for P or B frames (i.e., inter mode, see page 275, section 3) and the

Art Unit: 2613

padding with an average pixel of the masked area when the video image comprises an I frame (see page 275, section 3). Therefore, it would have been obvious to one of ordinary skill in the art, having the Eifrig et al and Ostermann references in front of him/her and the general knowledge of the padding of masked areas of background regions, would have had no difficulty in providing the padding of pixels to 0 for P or B frames and the padding with an average pixel of the masked area when the video image comprises an I frame as taught by Ostermann as part of the padding system within Eifrig et al for the same well known good resulting coding efficiency purposes as claimed.

9. The applicants, at page 6 of the amendment filed November 2, 2005, request the withdrawal of the rejection of the claims under 35 USC 112, second paragraph and 35 USC 101 as a result of the present amendment to the claims. Upon further review, it is submitted that the applicants have failed to fully address the two respective rejections (see above paragraphs (1) and (3)), and consequently the two respective rejections are hereby maintained.

Regarding the applicants' arguments at pages 6-7 of the amendment filed November 2, 2005 concerning in general that "... The Office asserts that the landscape backdrop element 109 or the VOP 119 of Eifrig read on the masked area of the claimed invention ... Applicants respectfully traverse this assertion because in Eifrig, either the landscape backdrop element 109 or the VOP 119 is not determined from data associated with the square foreground element 107 and the oblong foreground element 108 or VOP 117 and VOP 118, respectively ... the backdrop element 109 and the VOP 119 covers the whole frame and thus is not determined from the data associated with elements 107 and 108 or VOP 117 and VOP 118 ...", the Examiner respectfully disagrees. Contrary to the applicants' contention, backdrop (i.e., background) element 109 does

Art Unit: 2613

not cover the whole frame since frame 115 for example includes not only background element 119, but also foreground elements 117 and 118. The applicants' attention is directed to column 5, lines 39-45 of Eifrig wherein it is taught that elements are designated VOPS using a segmentation mask such that VOP 117 represents the square foreground element 107, VOP 118 represents the oblong foreground element 108, and VOP 119 represent the landscape backdrop (background) element. It is clear from this passage that the foreground and background elements must be distinguishable from each other when performing the segmentation mask and as a result the masked areas 117-119 are determined from data associated with not only foreground shape but also background shape as well.

Regarding the applicants' arguments at page 7 of the amendment filed November 2, 2005 concerning in general that the value of padding is not arbitrary in Eifrig, such arguments have been addressed in the above paragraph (5).

Regarding the applicants' arguments at pages 7-8 of the amendment filed November 2, 2005 concerning in general that "... the "pels outside of the object" of Ostermann are not equivalent to the masked areas of the claimed invention because pels outside the object are not masked by the object and is not determined from data associated with the object. In addition, in Ostermann, what values is used to pad the pels outside of the object is not determined based on whether the video image comprises a P or B frame or comprises an I frame ...", the Examiner wants to point out that, at page 275, section 3 of Ostermann, it is taught that in "the inter mode setting these pels to 0 results in good coding efficiency". It is well recognized in the art that the inter mode of Ostermann pertains to P or B frame processings in motion estimations/compensation predictions and though Ostermann teaches that the texture of pels



Art Unit: 2613


outside of the object are padded to 0, Ostermann is not limited to such restriction. Ostermann teaches that it is only desired to choose the texture of pels outside of the object for padding in order to increase coding efficiency. In addition, in section 3 of Ostermann, it is taught that “In order to guarantee that every pel of the current VOP has a value to be predicted from, some or all of the boundary and transparent blocks to the reference VOP have to be padded”, and “Boundary blocks are padded using repetitive padding: Boundary pels are the pels on the object boundary belonging to the VOP”. It is therefore clear that Ostermann teaches the particular masked area (VOP) being padded with zero when the video image comprises a P or B frame and wherein the masked area is padded with an average pixel value of the masked area when the video image comprises an I frame, as claimed (see page 275, section 3 of Ostermann).

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2613

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.



**RICHARD LEE  
PRIMARY EXAMINER**

Richard Lee/rl   
1/19/06